Contents, Volume 101

NUMBER 1 — **JANUARY 1973**

Detailed Analyses of Precipitation Patterns Associated With Mesoscale Features Accompanying United States East Coast Cyclogenesis — Lance F. Bosart — 1–12
Mesosystem Weather in the Pacific Northwest—A Summer Case Study — Owen P. Cramer — 13–23
Statistical Estimation of Precipitable Water With SIRS-B Water Vapor Radiation Measurements — William C. Shen and William L. Smith — 24–32
Break-Monsoon Over India — K. Raghavan — 33–43
Measurements of the Atmospheric Mass, Energy, and Momentum Budgets Over a 500-Kilometer Square of Tropical Ocean — Joshua Z. Holland and Eugene M. Rasmusson — 44–55
Picture of the Month—High Altitude Minuteman Exhaust Trail — O. H. Daniel, H. W. Brandli, and J. Ernst — 56–57
Remote Forcing of the Time-Independent Tropical Atmosphere — Peter J. Webster — 58–68
Latitude-Longitude Grid Suitable for Numerical Time Integration of a Global Atmospheric Model — J. Leith Holloway, Jr., Michael J. Spelman, and Syukuro Manabe — 69–78
Note on a Simple, Restorative-Iterative Procedure for Initialization of a Global Forecast Model — Francis J. Winninghoff — 79–84
Weather and Circulation of October 1972—Record October Precipitation in the Southwest — Robert E. Taubensee — 85–90

NUMBER 2 — **FEBRUARY 1973**

Some Effects of Surface Anomalies in a Global General Circulation Model — Jerome Spar — 91–100
Mass and Energy Transports in an Undisturbed Atlantic Trade-Wind Flow — Ernst Augstein, Herbert Riehl, Feodor Ostapoff, and Volker Wagner — 101–111
Weather Note—Record 12- and 24-Hour Deepening Rates in a Tropical Cyclone — Charles R. Holliday — 112–114
The Economics of Extended-Term Weather Forecasting — Lee G. Anderson — 115–125
Application of Economic Analyses to Hurricane Warnings to Residential and Retail Activities in the U.S. Gulf of Mexico Coastal Region — Lee G. Anderson and John M. Burnham — 126–131
Analysis of Nimbus 3 SIRS Radiance Data: Traveling Planetary-Scale Waves in the Stratospheric Temperature Field — Raymond J. Deland — 132–140
Determination of Stratospheric Temperature and Height Gradients From Nimbus 3 Radiation Data — George W. Nicholas, Dale N. Hovland, and Arthur D. Belmont — 141–149
Mesoscale Circulations Associated With Alberta Hailstorms — Gerd Ragette — 150–159
Gamma Distribution Probability Model for Asian Summer Monsoon Monthly Rainfall — Diwakar A. Mooley — 160–176
Weather Note—Birth of Hurricane Agnes—Triggered by the Transequatorial Movement of a Mesoscale System into a Favorable Large-Scale Environment — Jerome Namias — 177–179
Picture of the Month—Meso-Highs and Satellite Imagery — James F. W. Purdom — 180–181
Weather and Circulation of November 1972—Another Cold, Wet Month — Robert R. Dickson — 182–186

NUMBER 3 — **MARCH 1973**

Dynamics of the Sea Breeze in the Atmospheric Boundary Layer: A Case Study of the Free Convection Regime — Shih-Ang Hsu — 187–194
Air Currents in a Mountain Valley Deduced From the Breakup of a Stratus Deck — Edward E. Hindman II — 195–200
A One-Dimensional Cumulus Model Including Pressure Perturbations — James R. Holton — 201–205
Forecasting the Motion of North Atlantic Tropical Cyclones by the Objective MOHATT Scheme — R. J. Renard, S. G. Colgan, M. J. Daley, and S. K. Rinard — 206–214
Forecasting Daily Rainfall From Satellite Data — Eric C. Barrett — 215–222
Forecasting Work Conditions for Road Construction Activities: An Application of Alternative Probability Models — Emil D. Attanasi, S. R. Johnson, Sharon LeDuc and James D. McQuigg — 223–230
Numerical Advection Experiments With Higher Order, Accurate, Semimomentum Approximations — Joseph P. Gerrity, Jr. — 231–234
Comparative Test of Direct and Iterative Methods for Solving Helmholtz-Type Equations — Lance M. Leslie and Bryant J. McAvaney — 235–239
A Procedure for Estimating Cloud Amount and Height From Satellite Infrared Radiation Data — R. Koffler, A. G. DeCotiis, and P. Krishna Rao — 240–243
Compatibility of Radiosonde and Nimbus 4 SIRS-Derived Data at Stratospheric Constant-Pressure Surfaces — Frederick G. Finger, Keith W. Johnson, Melvyn E. Gelman, and Raymond M. McInturff — 244–251
On the Estimation of Kinematic Parameters in the Atmosphere From Radiosonde Wind Data — Harrison Chien and Phillip J. Smith — 252–261
Picture of the Month—VHRR Imagery of an Inversion — L. F. Hubert and Russell Koffler — 262–263
Secular Climatic Fluctuations in Southwestern Colorado — Raymond S. Bradley and Roger G. Barry — 264–270
Some Aspects of Indian Monsoon Depressions and the Associated Rainfall — Diwaker A. Mooley — 271–280
Weather and Circulation of December 1972—Record Cold in the West — Robert E. Taubensee — 281–286

NUMBER 4 — **APRIL 1973**

Global Model of the General Circulation of the Atmosphere Below 75 Kilometers With an Annual Heating Cycle — Kevin E. Trenberth — 287–305

Dynamic Coupling of the Stratosphere With the Troposphere and Sudden Stratospheric Warmings — Kevin E. Trenberth 306–322
Atlantic Hurricane Season of 1972 — R. H. Simpson and Paul J. Hebert 323–333
Atlantic Tropical Systems of 1972 — Neil L. Frank 334–338
Eastern North Pacific Hurricane Season of 1972 — Robert A. Baum 339–349
Application of the Poisson and Negative Binomial Models to Thunderstorm and Hail Days Probabilities in Nevada — Clarence M. Sakamoto 350–355
Marine Air Penetration in Western Oregon: An Observational Study — Lars E. Olsson, William P. Elliott, and Sheng-I Hsu 356–362
Marine Conditions and Automated Forecasts for the Atlantic Coastal Storm of February 18–20, 1972 — N. Arthur Pore 363–370
Trends and Periodicities of Rainfall Over India — P. Jagannathan and B. Parthasarathy 371–375
Correction Notice — 375
Picture of the Month—Late Summer Hazards to Coastal Southern California — Jay Rosenthal 376–377
Correspondence: Comments on "The Unnamed Atlantic Tropical Storms of 1970" — Edward W. Ferguson 378–379
Reply — David B. Spiegler 380
Weather and Circulation of January 1973—Strong Warming Trend Around Midmonth — A. James Wagner 381–386

NUMBER 5 **MAY 1973**

Detailed Mesometeorological Studies of Air Pollution Dispersion in the Chicago Lake Breeze — Walter A. Lyons and Lars E. Olsson 387–403
Long-Range Transport of Air Pollution: A Case Study, August 1970 — Franklin P. Hall, Jr., Claude E. Duchon, Laurence G. Lee, and Richard R. Hagan 404–411
Analysis of the Mean Forcing Fields Simulated by the Two-Level, Mintz-Arakawa Atmospheric Model — W. Lawrence Gates 412–425
Quasi-Biennial and Long-Term Fluctuations in Total Ozone — J. K. Angell and J. Korshover 426–443
Picture of the Month—Multiple Tropical Storms in the Western North Pacific — Charles R. Holliday 444–445
Gravity Wave Phenomena Accompanying East Coast Cyclogenesis — Lance F. Bosart and John P. Cussen, Jr. 446–454
The Role of Deep Convection and Strong Winds Aloft in Triggering Gales Over the Persian Gulf: Comparative Case Studies — Pieter J. Feteris 455–460
Weather and Circulation of February 1973—An Active Low-Latitude Storm Track Across the United States — Robert R. Dickson 461–466

NUMBER 6 **JUNE 1973**

A Study of the Atmospheric Response Due to a Diurnal Heating Function Characteristic of an Urban Complex — Fred M. Vukovich 467–474
Relationship Between Midstratospheric Temperatures and Tropospheric Synoptic Features — David Rind and Vito Pagnotti 475–485
Some Characteristics of Satellite-Observed Bands of Persistent Cloudiness Over the Southern Hemisphere — Neil A. Streten 486–495
Urgent Notice to Authors and Subscribers — 495
On Destabilization of Clouds by Radiative Cooling — Ramesh V. Godbole 496–500
Time Series Analysis of Annual Temperatures — Erat S. Joseph 501–504
Spectral Analysis of Daily Maximum and Minimum Temperature Series on the East Slope of the Colorado Front Range — Erat S. Joseph 505–509
Numerical Experiments on the Steady-State Meridional Structure and Ozone Distribution in the Stratosphere — V. R. Krishna Rao 510–527
Design Criteria for Finite-Difference Models for Eddy Diffusion With Winds That Guarantee Stability, Mass Conservation, and Nonnegative Masses — I. M. Bassett, R. G. L. Hewitt, and Brian Martin 528–534
On the Solution of the Generalized Ekman Equation — Joseph T. Schaefer 535–537
Picture of the Month—NOAA 2 Scanning Radiometer Visual and Infrared Imagery Received Real-Time Over a 50,000-Mile Transmission Link — Henry W. Brandli, John W. Oliver, and Ramon J. Estu 538–539
Weather and Circulation of March 1973—Record Heavy Precipitation Over the Central and Southern Great Plains — Robert E. Taubensee 540–546

NUMBER 7 **JULY 1973**

A Scheme of Moist Convective Adjustment — Yoshio Kurihara 547–553
Transequatorial Effects of Sea-Surface Temperature Anomalies in a Global General Circulation Model — Jerome Spar 554–563
A Note on Mixed Resolution for Numerical Models — R. W. Daley 564–565
The Steady-State Structure of the Ultralong Waves Produced by Heating With a Pressure-Dependent Frictional Effect — Fred M. Vukovich 566–572
The Role of Cumulus Convection in the Development of Extratropical Cyclones — M. Steven Tracton 573–593
Urgent Notice to Authors and Subscribers — 593
Picture of the Month—Dry Air Intrusion Into a Low-Level Moist Tongue as Viewed by ATS 3 — Joseph A. Miller 594–595
Suggestions for Authors — 596
Weather and Circulation of April 1973—A Stormy Month With Widespread Flooding — A. James Wagner 597–602

NUMBER 8 **AUGUST 1973**

Effects of an Equatorial "Wall" on an Atmospheric Model — K. Miyakoda and L. Umscheid, Jr. 603–616
The Effect of Thermal Stratification and Evaporation on Geostrophic Drag Coefficient in the Atmospheric Boundary Layer — Gour-Tsyh Yeh 617–623

The Influence of Average Snow Depth on Monthly Mean Temperature Anomaly — A. James Wagner — 624–626
Climatological Aspects of Eastern United States Back-Door Cold Frontal Passages — Lance F. Bosart, Vito Pagnotti, and Bernhard Lettau — 627–635
Evapotranspiration Climatonomy II: Refinement of Parameterization, Exemplified by Application to the Mabacan River Watershed — H. H. Lettau and M. W. Baradas — 636–649
Note on Pressure Oscillations Over South Africa — Robert A. Preston-Whyte and Peter D. Tyson — 650–653
Picture of the Month—Snow Covers the Southland — Arthur H. Smith — 654–655
Urgent Notice to Authors and Subscribers — 656
Weather and Circulation of May 1973—Warm in the West, Cold in the East — Robert R. Dickson — 657–661
Correction Notice — 662

NUMBER 9 — **SEPTEMBER 1973**

Analysis of Hurricane Debbie Modification Results Using the Variational Optimization Approach — Robert C. Sheets — 663–684
Note on Design of an Optimized Computation Scheme for Kinematic Vertical Motion Fields — Ernest C. Kung — 685–690
Changes in the Pattern of Distribution of Southwest Monsoon Rainfall Over India Associated With Sunspots — P. Jagannathan and H. N. Bhalme — 691–700
Three-Parameter Kappa Distribution Maximum Likelihood Estimates and Likelihood Ratio Tests — Paul W. Mielke, Jr. and Earl S. Johnson — 701–707
Picture of the Month—Gravity Waves Following Severe Thunderstorms — Carl O. Erickson and Linwood F. Whitney, Jr. — 708–711
Weather and Circulation of June 1973—Warm in the North, Cool in the South — Robert E. Taubensee — 712–717
Urgent Notice to Authors and Subscribers — 718

NUMBER 10 — **OCTOBER 1973**

An Observational and Theoretical Study of Atmospheric Flow Over a Heated Island:
Part I — Chandrakant M. Bhumralkar — 719–730
Part II — Chandrakant M. Bhumralkar — 731–745
Three-Dimensional Characteristics of Diurnally Varying Boundary-Layer Flows — Jan Paegle and Glenn E. Rasch — 746–756
Midlatitude Synoptic Scale Systems: Their Kinetic Energy Budgets and Role in the General Circulation — Phillip J. Smith — 757–762
Monthly Fog Frequency in the Continental United States — Willis C. Hardwick — 763–766
Supplementary Notes on Sea-Surface Temperature Anomalies and Model-Generated Meteorological Histories — Jerome Spar — 767–773
Picture of the Month—Frontal Rope in the North Pacific — John E. Shaughnessy and Thomas C. Wann — 774–776
Urgent Notice to Authors and Subscribers — 776
Weather and Circulation of July 1973—Cool and Wet in the Middle Third of the Country but Increasing Drought in the Northwest — A. James Wagner — 777–782

NUMBER 11 — **NOVEMBER 1973**

Effect of Photochemical Models on Calculated Equilibria and Cooling Rates in the Stratosphere — Donna Blake and Richard S. Lindzen — 783–802
Temporal Variation of Low-Latitude Zonal Circulations — Peter J. Webster — 803–816
Meridional Atmospheric Teleconnections Over the North Pacific From 1950 to 1972 — W. B. White and A. E. Walker — 817–822
Urgent Notice to Authors and Subscribers — 823
An Automated Objective Technique for Constructing Tropical Cyclone Best Tracks — Martin M. Cassity and Stephen G. Colgan — 824–829
Picture of the Month—Orographic Fibrous Plumes Over New England — John H. Conover — 830–832
Weather and Circulation of August 1973—Continued Drought in the Northwest — Robert R. Dickson — 833–838

NUMBER 12 — **DECEMBER 1973**

Cumulus Convection and Larger Scale Circulations:
I. Broadscale and Mesoscale Considerations — William M. Gray — 839–855
II. Cumulus and Mesoscale Interactions — Raúl Erlando López — 856–870
A Vertically Integrated Primitive-Equation Model — Joseph Sela and William J. Bostelman — 871–876
Correlation of Nocturnal Thunderstorms and Boundary-Layer Convergence — Jan Paegle and David W. McLawhorn — 877–883
An Estimate of the Distribution and Stability Period of the Parameters of the Gamma Probability Model Applied to Monthly Rainfall Over Southeast Asia During the Summer Monsoon — Diwakar A. Mooley — 884–890
Urgent Notice to Authors and Subscribers — 890
Note on the Sample Size to Achieve Normality for Estimators for the Gamma Distribution — L. R. Shenton and K. O. Bowman — 891–892
Comparison of Mean Cloud Cover Obtained by Satellite Photographs and Ground-Based Observations Over Europe and the Atlantic — Horst Malberg — 893–897
Picture of the Month—Autumn Snow Storms in the Plains — Terry R. Schoeni — 898–900
Weather and Circulation of September 1973—Record September Precipitation in the Great Plains and Rocky Mountains — Robert E. Taubensee — 901–906
Contents, Volume 101 — 907–909
Correction Notices — 910
Index, Volume 101 — 911–918

Correction Notices

Vol. 101, No. 2, Feb. 1973, p. 140, left col: the reference to Deland, Raymond J. (1972*b*) should read Deland, Raymond J., "Traveling Planetary-Scale Temperature Waves in the Stratosphere," *TR* No. 72–5, NSF Grant GA-25820, Geophysical Sciences Laboratory, New York University, Bronx, N.Y., Aug 1972*b*, 63 pp.

Vol. 101, No. 2, Feb. 1973.
Page 163, right col., third text line: read $g_1(=m_3/m_2^{3/2})$ and $g_2[=(m_4/m_2^2)-3]$.

Page 165, left col.: the equation following eq (8) should read $\psi(\hat{g})=\dfrac{\partial \ln \Gamma(\hat{g})}{\partial \hat{g}}$ = di-gamma function.

Page 170, table 6: read as shown, corrected values are underlined

TABLE 6.—*Parameters of gamma distribution fitted to monthly rainfall and their variance*

Station	June		July		Aug.		Sept.	
	$\hat{b}$*	$\hat{g}$	$\hat{b}$	$\hat{g}$	$\hat{b}$	$\hat{g}$	$\hat{b}$	$\hat{g}$
	Var($\hat{b}$)	Var($\hat{g}$)	Var($\hat{b}$)	Var($\hat{g}$)	Var($\hat{b}$)	Var($\hat{g}$)	Var($\hat{b}$)	Var($\hat{g}$)
Ahmadabad	74.1	1.191	120.1	2.538	129.3	1.582	148.4	0.900
	144	0.024	326	0.119	400	0.044	630	0.013
Akyab	80.2	14.315	95.3	14.154	102.3	10.682	61.3	9.972
	143	4.404	202	4.302	234	2.432	84	2.115
Allahabad	97.1	0.990	73.3	4.166	69.3	4.239	97.0	1.724
	248	0.016	113	0.325	101	0.337	218	0.051
Amini Divi	40.2	9.076	89.4	3.321	84.2	2.221	57.6	2.443
	50	2.408	257	0.304	236	0.131	109	0.160
Bombay	111.7	4.530	126.4	4.985	116.9	3.117	112.1	2.338
	186	0.273	237	0.333	208	0.126	196	0.069
Calcutta	60.8	4.168	37.5	8.631	30.1	8.530	42.8	5.929
	78	0.246	22	1.095	24	1.069	29	0.508
Colombo	59.3	3.332	69.9	1.711	74.5	1.208	90.2	1.493
	84	0.227	125	0.056	151	0.026	213	0.041
Fort Cochin	68.8	10.875	84.1	6.867	61.5	5.420	87.9	2.729
	100	2.391	151	0.937	81	0.577	173	0.139
Gauhati	38.1	8.000	43.2	6.963	42.4	6.315	59.9	3.006
	28	1.160	36	0.881	35	0.715	72	0.154
Hong Kong	109.6	3.792	87.1	4.324	91.8	4.039	111.7	2.446
	347	0.350	217	0.476	242	0.413	371	0.145
Hyderabad	40.6	2.511	32.2	5.337	34.9	4.194	54.5	3.074
	53	0.164	32	0.789	37	0.480	93	0.251
I-Chang	48.4	3.269	61.3	3.437	57.2	3.228	73.6	1.491
	92	0.360	147	0.400	129	0.349	238	0.069
Jaipur	56.2	1.011	68.1	2.905	131.5	1.559	75.4	1.090
	91	0.018	111	0.171	459	0.047	165	0.022
Kutaradja	38.6	2.335	64.4	1.555	43.9	2.477	78.5	2.071
	48	0.141	141	0.059	61	0.160	201	0.109
Kyoto	54.0	4.317	73.2	2.767	60.2	2.447	53.4	3.750
	76	0.433	144	0.171	99	0.132	75	0.325
Lahore	33.2	1.265	73.2	1.942	81.7	1.616	87.5	0.754
	29	0.028	122	0.056	160	0.046	262	0.010
Madras	29.2	1.607	33.2	2.803	35.2	3.319	48.3	2.480
	13	0.033	16	0.096	18	0.136	35	0.074
Mandalay	60.2	2.089	42.1	1.806	25.9	4.129	41.6	3.560
	123	0.116	62	0.085	22	0.480	56	0.357
Mangalore	61.1	15.710	112.1	8.982	90.0	6.601	80.4	3.507
	78	4.983	264	1.604	172	0.855	141	0.231
Manila	88.4	2.883	105.6	4.012	132.9	3.235	58.0	5.906
	250	0.223	349	0.444	560	0.284	106	0.986

Station	June		July		Aug.		Sept.	
	$\hat{b}$*	$\hat{g}$	$\hat{b}$	$\hat{g}$	$\hat{b}$	$\hat{g}$	$\hat{b}$	$\hat{g}$
	Var($\hat{b}$)	Var($\hat{g}$)	Var($\hat{b}$)	Var($\hat{g}$)	Var($\hat{b}$)	Var($\hat{g}$)	Var($\hat{b}$)	Var($\hat{g}$)
Menado	41.4	4.194	73.5	1.982	56.2	2.126	61.1	1.794
	47	0.429	165	0.093	97	0.109	117	0.076
Mergui	64.4	11.847	78.3	10.243	48.2	15.588	58.9	10.863
	100	3.250	149	2.420	56	5.665	84	2.726
Minicoy	37.3	7.839	55.4	4.003	82.0	2.344	75.0	2.147
	43	1.787	97	0.470	223	0.146	188	0.121
Nagasaki	97.1	3.367	116.6	2.192	89.2	2.102	89.6	2.712
	250	0.258	374	0.105	220	0.096	216	0.164
Nagpur	81.6	2.586	60.0	6.037	60.1	4.472	62.6	3.079
	135	0.111	69	0.646	71	0.348	78	0.160
Naha	80.6	3.579	50.7	3.688	115.4	2.320	52.3	3.410
	254	0.434	100	0.462	540	0.175	107	0.393
Pei-Hai	81.2	3.369	110.8	4.216	135.1	3.229	105.8	2.373
	274	0.406	503	0.646	760	0.371	479	0.194
Port Blair	53.3	9.460	60.9	6.452	60.2	6.521	62.4	7.475
	66	1.965	87	0.900	85	0.920	91	1.216
Quangtri	49.2	1.447	53.3	1.332	80.8	1.314	106.1	3.423
	111	0.068	125	0.058	305	0.55	477	0.428
Rangoon	42.1	11.655	41.1	13.715	37.7	13.797	24.7	15.973
	44	3.221	42	4.479	35	4.534	15	6.095
Saigon	23.3	13.490	29.5	9.836	32.4	8.271	28.4	11.803
	21	6.701	33	3.532	40	2.482	31	5.113
Sandakan	31.3	6.221	31.1	5.866	40.7	5.002	51.8	4.666
	31	1.113	30	0.987	52	0.711	85	0.616
Simla	67.9	2.474	58.5	7.520	58.1	7.318	74.7	2.333
	102	0.110	72	1.105	71	1.045	124	0.098
Singapore	29.0	5.866	42.2	3.779	43.9	3.886	25.9	6.131
	34	1.277	74	0.515	79	0.546	27	1.398
Taipei	67.0	4.548	69.1	3.437	128.6	2.245	90.6	2.466
	149	0.612	161	0.342	576	0.140	283	0.171
Tokyo	32.0	5.266	54.9	2.376	68.6	2.163	49.7	4.500
	26	0.636	80	0.121	126	0.099	63	0.460
Vengurla	104.0	8.190	163.4	5.751	101.5	4.984	93.5	2.845
	225	1.316	562	0.638	220	0.475	192	0.148
Vishakhapatnam	43.8	2.377	36.1	3.256	49.0	2.638	58.9	3.078
	44	0.105	29	0.203	55	0.130	78	0.180
Zi-Ka-Wei	54.9	3.294	78.0	1.890	50.1	2.787	51.2	2.561
	82	0.253	175	0.078	69	0.178	73	0.149

*$\hat{b}$ is in mm and Var($\hat{b}$), in mm^2.

INDEX, VOLUME 101

A

Advection experiments with higher order, accurate, semimomentum approximations. 231.
Air currents in a mountain valley. 195.
Air pollution dispersion in Chicago lake breeze. 387.
Air pollution long-range transport, Aug. 1970. 404.
Alberta hailstorms and mesoscale circulations. 150.
Alternative probability models applied to work conditions forecasting. 223.
ANDERSON, LEE G.:
The economics of extended-term weather forecasting. 115.
and John M. Burnham. Application of economic analyses to hurricane warnings to residential and retail activities in the U.S. Gulf of Mexico coastal region. 126.
ANGELL, J. K.:
and J. Korshover. Quasi-biennial and long-term fluctuations in total ozone. 426.
Annual heating cycle and a global model of general circulation below 75 km. 287.
Annual temperatures—time series analysis. 501.
Anomalies of surface temperature in global general circulation models. 91.
April 1973 weather and circulation. 597.
Asian summer monsoon rainfall gamma distribution probability. 160.
Atlantic coastal storm of Feb. 18–20, 1972, and marine conditions and automated forecasts. 363.
Atlantic hurricane season of 1972. 323.
Atlantic tropical systems of 1972. 334.
Atmospheric response due to diurnal heating function of an urban complex. 467.
ATS 3 views dry air intrusion into low-level moist tongue. 594.
ATTANASI, EMIL D.:
and S. R. Johnson, Sharon LeDuc and James D. McQuigg. Forecasting work conditions for road construction activities: An application of alternative probability models. 223.
AUGSTEIN, ERNST:
and Herbert Riehl, Feodor Ostapoff, and Volker Wagner. Mass and energy transports in an undisturbed Atlantic trade-wind flow. 101.
August 1973 weather and circulation. 833.
Automated forecasts and marine conditions for Atlantic coastal storm of Feb. 18–20, 1972. 363.
Automated objective technique for constructing tropical cyclone best tracks. 824.
Average snow depth and monthly mean temperature anomaly. 624

B

Back-door cold frontal passages—climatological aspects in eastern U.S. 627.
BARADAS, M. W.:
and H. H. Lettau. Evapotranspiration climatonomy II: Refinement of parameterization, exemplified by application to the Mabacan River watershed. 636.
BARRETT, ERIC C.:
Forecasting daily rainfall from satellite data. 215.
BARRY, ROGER G.:
and Raymond S. Bradley. Secular climatic fluctuations in southwestern Colorado. 264.
BASSETT, I. M.:
and R. G. L. Hewitt and Brian Martin. Design criteria for finite-difference models for eddy diffusion with winds that guarantee stability, mass conservation, and nonnegative masses. 528.
BAUM, ROBERT A.:
Eastern North Pacific hurricane season of 1972. 339.
BELMONT, ARTHUR D.:
and George W. Nicholas and Dale N. Hovland. Determination of stratospheric temperature and height gradients from Nimbus 3 radiation data. 141.
Best tracks for tropical cyclones: automated objective technique for construction. 824.
BHALME, H. N.:
and P. Jagannathan. Changes in the pattern of distribution of southwest monsoon rainfall over India associated with sunspots. 691.
BHUMRALKAR, CHANDRAKANT M.:
An observational and theoretical study of atmospheric flow over a heated island—Parts I, II. 719, 731.
Birth mechanism of hurricane Agnes. 177.
BLAKE, DONNA:
and Richard S. Lindzen. Effect of photochemical models on calculat edequilibria and cooling rates in the stratosphere. 783.
BOSART, LANCE F.:
Detailed analyses of precipitation patterns associated with mesoscale features accompanying U.S. east coast cyclogenesis. 1.
and John P. Cussen, Jr. Gravity wave phenomena accompanying East Coast cyclogenesis. 446.
and Vito Pagnotti and Bernhard Lettau. Climatological aspects of Eastern U.S. back-door cold frontal passages. 627.
BOSTELMAN, WILLIAM J.:
and Joseph Sela. A vertically integrated primitive-equation model. 871.
Boundary-layer convergence and correlation with nocturnal thunderstorms. 877.
Boundary-layer dynamics of sea breeze. 187.
Boundary-layer flows—three-dimensional characteristics. 746.
BOWMAN, K. O.:
and L. R. Shenton. Note on sample size to achieve normality for estimators for the gamma distribution. 891.
BRADLEY, RAYMOND S.:
and Roger G. Barry. Secular climatic fluctuations in southwestern Colorado. 264.
BRANDLI, HENRY W.:
and John W. Oliver and Ramon J. Estu. Picture of the Month—NOAA 2 scanning radiometer visual and infrared imagery received real-time over a 50,000-mi. transmission link. 538.
and O. H. Daniel and J. Ernst. Picture of the month—High-altitude Minuteman exhaust trail. 56.
Break-monsoon over India. 33.
BURNHAM, JOHN M.:
and Lee G. Anderson. Application of economic analyses to hurricane warnings to residential and retail activities in the U.S. Gulf of Mexico coastal region. 126.

C

California southern coastal summer hazards. 376.
CASSITY, MARTIN M.:
and Stephen G. Colgan. An automated objective technique for constructing tropical cyclone best tracks. 824.
Changes in distribution of southwest monsoon rainfall over India associated with sunspots. 691.
Chicago lake breeze air pollution dispersion. 387.
CHIEN, HARRISON:
and Phillip J. Smith. On the estimation of kinematic parameter in the atmosphere from radiosonde wind data. 252.
Climatic secular fluctuations in southwestern Colorado. 264.
Climatological aspects of Eastern U.S. back-door cold frontal passages. 627.
Climatonomy—evapotranspiration parameterization refinement in application to Mabacan River watershed. 636.

Cloud amount and height estimation from satellite infrared radiation data. 240.
Cloud cover: comparison of means obtained by satellite photographs and ground-based observations over Europe and the Atlantic. 893.
Cloudiness in persistent bands over Southern Hemisphere. 486.
Clouds:
destablization by radiative cooling. 496.
Minuteman exhaust trail. 56.
persistent bands over Southern Hemisphere observed by satellite. 486.
Cold frontal passages (back-door) in Eastern U.S.—climatological aspects. 627.
COLGAN, STEPHEN G.:
and Martin M. Cassity. An automated objective technique for constructing tropical cyclone best tracks. 824.
and R. J. Renard, M. J. Daley, and S. K. Rinard. Forecasting the motion of North Atlantic tropical cyclones by the objective MOHATT scheme. 206.
Colorado Front Range—spectral analysis of daily maximum and minimum temperatures on east slope. 505.
Comparative test of direct and iterative methods for solving Helmholtz-type equations. 235.
Comparison of mean cloud cover obtained by satellite photographs and ground-based observations over Europe and the Atlantic. 893.
Compatibility of radiosonde and Nimbus 4 SIRS-derived data at stratospheric constant-pressure surfaces. 244.
Computation scheme optimized design for kinematic vertical motion fields. 685.
CONOVER, JOHN H.:
Picture of the month—Orographic fibrous plumes over New England. 830.
Contents, Vol. 101. 907.
Convection by cumulus and larger scale circulations:
I. Broadscale and mesoscale considerations. 839.
II. Cumulus and mesoscale interactions. 856.
Convection by cumulus in extratropical cyclone development. 573.
Convective adjustment in moist air. 547.
Cooling rates in the stratosphere: effect of photochemical models. 783.
Correction notices: 375, 662, 910.
Correlation of nocturnal thunderstorms and boundary-layer convergence. 877.
Correspondence:
comments on "The unnamed Atlantic tropical storms of 1970." 378.
CRAMER, OWEN P.
Mesosystem weather in the Pacific Northwest—A summer case study. 13.
Cumulus convection and larger scale circulations:
I. Broadscale and mesoscale considerations. 839.
II. Cumulus and mesoscale interactions. 856.
Cumulus convection in extratropical cyclone development. 573.
Cumulus model in one-dimension. 201.
CUSSEN, JOHN P., JR.:
and Lance F. Bosart. Gravity wave phenomena accompanying east coast cyclogenesis. 446.
Cyclogenesis along U.S. east coast—precipitation patterns. 1.
Cyclogenesis (extratropical) and role of cumulus convection. 573.
Cyclogenesis gravity waves on east coast. 446.

D

DALEY, J. J.:
and R. J. Renard, S. G. Colgan, and S. K. Rinard. Forecasting the motion of North Atlantic tropical cyclones by the objective MOHATT scheme. 206.
DALEY, R. W.:
A note on mixed resolution for numerical models. 564.
DANIEL, O. H.:
and H. W. Brandli and J. Ernst. Picture of the month—High-altitude Minutemen exhaust trail. 56.
December 1972—weather and circulation. 281.
DECOTIIS, A. G.:
and R. Koffler and P. Krishna Rao. A procedure for estimating cloud amount and height from satellite infrared radiation data. 240.
Deep convection and strong winds aloft and Persian Gulf gales. 455.
DELAND, RAYMOND J.:
Analysis of Nimbus 3 SIRS radiance data: traveling planetary-scale waves in the stratospheric temperature field. 132.
Design criteria for finite-difference models for eddy diffusion. 528.
Destabilization of clouds by radiative cooling. 496.
DICKSON, ROBERT R.:
Weather and circulation of November 1972—another cold, wet month. 182.
Weather and circulation of February 1973—an active low-latitude storm track across the United States. 461.
Weather and circulation of May 1973—warm in the West, cold in the East. 657.
Weather and circulation of August 1973—continued drought in the Northwest. 833.
Distribution and stability period of the parameters of the gamma probability model applied to monthly rainfall over Southeast Asia during summer monsoon. 884.
Diurnally varying boundary-layer flows—three-dimensional characteristics. 746.
Dry air intrusion into a low-level moist tongue as viewed by ATS 3. 594.
DUCHON, CLAUDE E.:
and Franklin P. Hall, JR., Laurence G. Lee, and Richard R. Hagan. Long-range transport of air pollution; a case study, August 1970. 404.
Dynamic coupling of stratosphere with troposphere and sudden stratospheric warming. 306.
Dynamics of sea breeze in atmospheric boundary layer. 187.

E

East coast cyclogenesis gravity waves. 446.
Eastern North Pacific hurricane season 1972. 339.
Economics application to hurricane warnings to residential, retail activities. 126.
Economics of extended-term weather forecasting. 115.
Eddy diffusion finite-difference models. 528.
Effect of thermal stratification and evaporation on geostrophic drag coefficient in the boundary layer. 617.
Effects of an equatorial "wall" on an atmospheric model. 603.
Effects of surface anomalies in global general circulation model. 91.
Ekman equation solution. 535.
ELLIOTT, WILLIAM P.:
and Lars E. Olsson and Sheng-I Hsu. Marine air penetration in western Oregon: an observational study. 356.
Energy and mass transports in Atlantic trade-wind flow. 101.
Energy budget over a 500-km square of tropical ocean. 44.
ERICKSON, CARL O.:
and Linwood F. Whitney, JR. Picture of the month—Gravity waves following severe thunderstorms. 708.
ERNST, J.:
and O. H. Daniel and H. W. Brandli. Picture of the month—High-altitude Minuteman exhaust trail. 56.
Equatorial "wall" effects on an atmospheric model. 603.
Estimation of cloud amount and height from satellite infrared radiation data. 240.
Estimation of kinematic parameters in atmosphere from radiosonde wind data. 252.
ESTU, RAMON J.:
and Henry W. Brandli. Picture of the month—NOAA 2 scanning radiometer visual and infrared imagery received real-time over a 50,000-mile transmission link. 538.
Evaporation and thermal stratification effect on boundary layer geostrophic drag coefficient. 617.
Evapotranspiration climatonomy II: Refinement of parameterization, exemplified by application to Mabacan River watershed. 636.

Extratropical cyclone development and cumulus convection. 573.

F

February 1973 weather and circulation. 461.
FERGUSON, EDWARD W.:
Correspondence: comments on "The unnamed Atlantic tropical storms of 1970." 378.
FETERIS, PIETER J.:
The role of deep convection and strong winds aloft in triggering gales over the Persian Gulf: comparative case studies. 455.
FINGER, FREDERICK G.:
and Keith W. Johnson, Melvyn E. Gelman, and Raymond M. McInturff. Compatibility of radiosonde and Nimbus 4 SIRS-derived data at stratospheric constant-pressure surfaces. 244.
Fluctuations, quasi-biennial and long-term, in total ozone. 426.
Fluctuations (secular) of climate in southwestern Colorado. 264.
Fog: monthly frequency in U.S. 763.
Forcing fields simulated by two-level Mintz-Arakawa model. 412.
Forecasting:
motion of North Atlantic tropical cyclones using objective MOHATT scheme. 206.
daily rainfall from satellite data. 215.
work conditions for road construction activities. 223.
best tracks for tropical cyclones using automated objective technique. 824.
FRANK, NEIL L.:
Atlantic tropical systems of 1972. 334.
Free convection regime study. 187.
Frequency (monthly) of fog in U.S. 774.
Frontal rope in North Pacific. 763.

G

Gales over Persian Gulf—role of deep convection and strong winds aloft. 455.
Gamma distribution probability model for Asian summer monsoon rainfall. 160.
Gamma distribution: sample size to achieve normality for estimators. 891.
Gamma probability model: distribution and stability period of parameters applied to monthly rainfall over Southeast Asia during summer monsoon. 884.
GATES, W. LAWRENCE:
Analysis of the mean forcing fields simulated by the two-level, Mintz-Arakawa atmospheric model. 412.
GELMAN, MELVYN E.:
and Frederick G. Finger, Keith W. Johnson, and Raymond M. McInturff. Compatibility of radiosonde and Nimbus 4 SIRS-derived data at stratospheric constant-pressure surfaces. 244.
General circulation role of the kinetic energy budgets of synoptic scale systems. 757.
Generalized Ekman equation solution. 535.
GERRITY, JOSEPH P., JR.:
Numerical advection experiments with higher order, accurate, semimomentum approximations. 231.
Global atmospheric numerical models:
latitude-longitude grid. 69.
model of the general circulation of the atmosphere below 75 km with annual heating cycle. 287.
restorative-iterative procedure for initialization. 79.
transequatorial effects of sea-surface temperature anomalies. 554.
GODBOLE, RAMESH V.:
On destabilization of clouds by radiative cooling. 496.
Gravity wave phenomena accompanying east coast cyclogenesis. 446.
Gravity waves following severe thunderstorms. 708.
GRAY, WILLIAM M.:
Cumulus convection and larger scale circulations:
I. Broadscale and mesoscale considerations. 839.
Grid for numerical integration of a global model. 69.
Gulf of Mexico coast—application of economic analyses to hurricane warnings. 126.

H

HAGAN, RICHARD R.:
and Franklin P. Hall, Jr., Claude E. Duchon, and Laurence G. Lee. Long-range transport of air pollution: a case study, August 1970. 404.
Hail day probabilities in Nevada. 350.
Hailstorms in Alberta. 150.
HALL, FRANKLIN P., JR.:
and Claude E. Duchon, Laurence G. Lee, and Richard R. Hagan Long-range transport of air pollution: a case study, August 1970. 404.
HARDWICK, WILLIS C.:
Monthly fog frequency in the Continental United States. 763.
Heated island and atmospheric flow studies, parts I, II. 719, 731.
Heating function (diurnal) of an urban complex. 467.
Heating with a pressure-dependent frictional effect and steady-state structure of ultralong waves. 566.
HEBERT, PAUL J.:
and R. H. Simpson. Atlantic hurricane season of 1972. 323.
Helmholtz-type equations: comparative test of direct and iterative methods of solution. 235.
HEWITT, R. G. L.:
and I. M. Bassett and Brian Martin. Design criteria for finite-difference models for eddy diffusion with winds that guarantee stability, mass conservation, and nonnegative masses. 528.
HINDMAN II, EDWARD E.:
Air currents in a mountain valley deduced from the breakup of a stratus deck. 195.
HOLLAND, JOSHUA Z.:
and Eugene M. Rasmusson. Measurements of the atmospheric mass, energy, and momentum budgets over a 500-km square of tropical ocean. 44.
HOLLIDAY, CHARLES R.:
Picture of the month—Multiple tropical storms in the western North Pacific. 444.
Weather note—Record 12- and 24-hour deepening rates in a tropical cyclone. 112.
HOLLOWAY, LEITH J., JR.:
and Michael J. Spelman and Syukuro Manabe. Latitude-longitude grid suitable for numerical time integration of a global atmospheric model. 69.
HOLTON, JAMES R.:
A one-dimensional cumulus model including pressure perturbations. 201.
HOVLAND, DALE N.:
and George W. Nicholas and Arthur D. Belmont. Determination of stratospheric temperature and height gradients from Nimbus 3 radiation data. 141.
HSU, SHENG-I.:
and Lars E. Olsson and William P. Elliott. Marine air penetration in western Oregon: an observational study. 356.
HSU, SHIH-ANG:
Dynamics of the sea breeze in the atmospheric boundary layer: a case study of the free convection regime. 187.
HUBERT, L. F.:
and Russell Koffler. Picture of the month—VHRR imagery of an inversion. 262.
Hurricane Agnes birth mechanism. 177.
Hurricane Debbie modification results—analysis using variational optimization. 663.
Hurricane season in Atlantic, 1972. 323.
Hurricane season in eastern North Pacific, 1972. 339.
Hurricane warnings—application of economic analyses. 126.

I

Index, Vol. 101. 911.
India:
break-monsoon. 33.

changes in distribution of southwest monsoon rainfall associated with sunspots. 691.
monsoon depressions and associated rainfall. 271.
rainfall trends and periodicities. 371.

J

JAGANNATHAN, P.:
and E. Parthasarathy. Trends and periodicities of rainfall over India. 371.
and H.N. Bhalme. Changes in the pattern of distribution of southwest monsoon rainfall over India associated with sunspots. 691.
January 1973 weather and circulation. 381.
JOHNSON, EARL S.:
and Paul W. Mielke, Jr. Three-parameter kappa distribution maximum likelihood estimates and likelihood ratio tests. 701.
JOHNSON, KEITH W.:
and Frederick G. Finger, Melvyn E. Gelman, and Raymond M. McInturff. Compatibility of radiosonde and Nimbus 4 SIRS-derived data at stratospheric constant-pressure surfaces. 244.
JOHNSON, S. R.:
and Emil D. Attanasi, Sharon LeDuc, and James D. McQuigg. Forecasting work conditions for road construction activities: an application of alternative probability models. 223.
JOSEPH, ERAT S.:
Spectral analysis of daily maximum and minimum temperature series on the east slope of the Colorado Front Range. 505.
Time series analysis of annual temperatures. 501.
July 1973 weather and circulation. 777.
June 1973 weather and circulation. 712.

K

Kappa distribution (3 parameter) maximum likelihood estimates and likelihood ratio tests. 701.
Kinematic atmospheric parameters estimation from radiosonde winds. 252.
Kinetic energy budgets of synoptic scale systems and role in general circulation. 757.
KOFFLER, RUSSELL:
and A. G. DeCotiis and P. Krishna Rao. A procedure for estimating cloud amount and height from satellite infrared radiation data. 240.
and L. F. Hubert. Picture of the month—VHRR imagery of an inversion. 262.
KORSHOVER, J.:
and J. K. Angell. Quasi-biennial and long-term fluctuations in total ozone. 426.
KUNG, ERNEST C.:
Note on design of an optimized computation scheme for kinematic vertical notion fields. 685.
KURIHARA, YOSHIO:
A scheme of moist convective adjustment. 547.

L

Lake breeze air pollution dispersion, Chicago. 387.
LEDUC, SHARON:
and Emil D. Attanasi, S. R. Johnson, and James D. McQuigg. Forecasting work conditions for road construction activities: an application of alternative probability models. 223.
LEE, LAURENCE G.:
and Franklin P. Hall, Jr., Claude E. Duchon, and Richard R. Hagan. Long-range transport of air pollution: a case study, August 1970. 404.
LESLIE, LANCE M :
and Bryant J. McAvaney. Comparative test of direct and iterative methods for solving Helmholtz-type equations. 235.
LETTAU, BERNHARD:
and Lance F. Bosart and Vito Pagnotti. Climatological aspects of eastern U.S. back-door cold frontal passages. 627.
LETTAU, H. H.:
and M. W. Baradas. Evapotranspiration climatonomy II: refinement of parameterization, exemplified by application to the Mabacan River watershed. 636.
Likelihood ratio tests and three-parameter kappa distribution. 701.
LINDZEN, RICHARD S.:
and Donna Blake. Effect of photochemical models on calculated equilibria and cooling rates in the stratosphere. 783.
Long-range transport of air pollution, Aug. 1970. 404.
Long-range weather forecasting economics. 115.
Long-term and quasi-biennial fluctuations in total ozone. 426.
LOPEZ, RAUL ERLANDO:
Cumulus convection and larger scale circulations: II. Cumulus and mesoscale interactions. 856.
LYONS, WALTER A.:
and Lars E. Olsson. Detailed mesometeorological studies of air pollution dispersion in the Chicago lake breeze. 387.

M

Mabacan River watershed—evapotranspiration climatonomy. 636.
MALBERG, HORST:
Comparison of mean cloud cover obtained by satellite photographs and ground-based observations over Europe and the Atlantic. 893.
MANABE, SYUKURO:
and J. Leith Holloway, Jr., and Michael J. Spelman. Latitude-longitude grid suitable for numerical time integration of a global atmospheric model. 69.
March 1973 weather and circulation. 540.
Marine air penetration observations in western Oregon. 356.
Marine conditions and forecasts for Atlantic coastal storm of Fe.b 18–20, 1972. 363.
MARTIN, BRIAN:
and I. M. Bassett and R. G. L. Hewitt. Design criteria for finite-difference models for eddy diffusion with winds that guarantee stability, mass conservation, and nonnegative masses. 528.
Mass and energy transports in Atlantic trade-wind flow. 101.
Mass budget over a 500-km square of tropical ocean. 44.
Maximum and minimum daily temperatures on east slope of Colorado Front Range—spectral analysis. 505.
Maximum likelihood estimates and three-parameter kappa distribution. 701.
MCAVANEY, BRYANT J.:
and Lance M. Leslie. Comparative test of direct and iterative methods for solving Helmholtz-type equations. 235.
MCLAWHORN, DAVID W.:
and Jan Paegle. Correlation of nocturnal thunderstorms and boundary-layer convergence. 877.
MCINTURFF, RAYMOND M.:
and Frederick G. Finger, Keith W. Johnson, and Melvyn E. Gelman. Compatability of radiosonde and Nimbus 4 SIRS-derived data at stratospheric constant-pressure surfaces. 244.
MCQUIGG, JAMES D.:
and Emil D. Attanasi, S. R. Johnson, and Sharon LeDuc. Forecasting work conditions for road construction activities: an application of alternative probability models. 223.
Mean cloud cover: comparison of satellite photographs and ground-based observations over Europe and the Atlantic. 893.
Mean forcing fields simulated by two-level Mintz-Arakawa model. 412.
Meridional atmospheric teleconnections over the North Pacific, 1950 to 1972. 817.
Meso-Highs and satellite imagery. 180.
Mesometeorological studies of air pollution dispersion in Chicago lake breeze. 387.
Mesoscale circulations with Alberta hailstorms. 150.
Mesoscale features in U.S. east coast cyclogenesis—precipitation patterns. 1.
Mesosystem weather in Pacific Northwest—summer case. 13.

Meteorological histories: model generation and sea-surface temperature anomalies. 767.
MIELKE, PAUL W., JR.:
and Earl S. Johnson. Three-parameter kappa distribution maximum likelihood estimates and likelihood ratio tests. 701.
MILLER, JOSEPH A.:
Picture of the month—Dry air intrusion into a low-level moist tongue as viewed by ATS 3. 594.
Minuteman exhaust trail. 56.
Mixed resolution for numercial models. 564.
MIYAKODA, K.:
and L. Umscheid, Jr. Effects of an equatorial "wall" on an atmospheric model. 603.
Modification of hurricane Debbie—analysis of results using variational optimization. 663.
MOHATT scheme for tropical cyclone forecasting. 206.
Momentum budget over a 500-km square of tropical ocean. 44.
Monsoon:
break over India. 33.
gamma distribution probability model for monthly rainfall. 160.
Indian depressions and associated rainfall. 271.
Monsoon (summer) over Southeast Asia: distribution and stability period of the parameters of the gamma probability model applied to monthly rainfall. 884.
Monthly fog frequency in U.S. 763.
MOOLEY, DIWAKAR A.:
An estimate of the distribution and stability period of the parameters of the gamma probability model applied to monthly rainfall over Southeast Asia during the summer monsoon. 884.
Gamma distribution probability model for Asian summer monsoon monthly rainfall. 160.
Some aspects of Indian monsoon depressions and the associated rainfall. 271.
Multiple tropical storms in Western North Pacific. 444.

N

NAMIAS, JEROME:
Weather note—Birth of hurricane Agnes—triggered by the transequatorial movement of a mesoscale system into a favorable large-scale environment. 177.
Negative binomial models and hail and thunderstorm day probabilities in Nevada. 350.
Nevada hail and thunderstorm day probabilities. 350.
NICHOLAS, GEORGE W.:
and Dale N. Hovland and Arthur D. Belmont. Determination of stratospheric temperature and height gradients from Nimbus 3 radiation data. 141.
Nimbus 3:
radiation data and stratospheric temperature and height gradients. 141.
SIRS radiance data analysis. 132.
Nimbus 4 SIRS-derived and radiosonde data compatibility in stratosphere. 244.
NOAA 2 scanning radiometer visual and infrared imagery received real-time. 538.
Normality for estimators for the gamma distribution: sample size required. 891.
North Atlantic tropical cyclone forecasting using objective MOHATT scheme. 206.
Note on design of optimized computation scheme for kinematic vertical motion fields. 685.
Note on mixed resolution for numerical models. 564.
Note on pressure oscillations over South Africa. 650.
Note on sample size to achieve normality for estimators for the gamma distribution. 891.
Note on simple, restorative-iterative procedure for global model initialization. 79.
November 1972—weather and circulation. 182.
Numerical models of the atmosphere:
atmospheric response due to diurnal heating function of an urban complex. 467.
dynamic coupling of stratosphere and troposphere and sudden stratospheric warmings. 360.
effects of an equatorial "wall." 603.
observational and theoretical study of atmospheric flow over a heated island. Part I. Part II. 719, 731.
effects of surface temperature anomalies in a global model. 91.
experiments on steady-state meridional structure and ozone distribution in the stratosphere. 510.
global model of general circulation below 75 km with annual heating cycle. 287.
one-dimensional cumulus model including pressure perturbations. 201.
remote forcing of tropical atmosphere. 58.
transequatorial effects of sea-surface temperature anomalies in a global general circulation model. 554.
vertically integrated numerical model. 871.
Numerical model techniques:
advection experiments with higher order, accurate, semimomentum approximations. 231.
comparative test of direct and iterative methods of solving Helmholtz-type equations. 235.
design criteria for finite-difference models for eddy diffusion. 528.
latitude-longitude grid for global model. 69.
mean forcing fields simulated by two-level Mintz-Arakawa model. 412.
note on mixed resolution for numerical models. 564.
restorative-iterative procedure for initialization of global model. 79.
scheme of moist convective adjustment. 547.

O

Objective technique for constructing tropical cyclone best tracks.
Observational and theroretical study of atmospheric flow over a heated island. Part I. Part II. 719, 731.
October 1972—weather and circulation. 85.
OLIVER, JOHN W.:
and Henry W. Brandli and Ramon J. Estu. Picture of the month—NOAA 2 scanning radiometer visual and infrared imagery received real-time over a 50,000-mi transmission link. 538.
OLSSON, LARS E.:
and Walter A. Lyons. Detailed mesometeorological studies of air pollution dispersion in the Chicago Lake Breeze. 387.
and William P. Elliott and Sheng-I Hsu. Marine air penetration in western Oregon: an observational study. 356.
One-dimensional cumulus model including pressure perturbations. 201.
Oregon marine air penetration. 356.
Orographic fibrous plumes over New England. 830.
Oscillations of pressure over South Africa. 650.
OSTAPOFF, FEODOR:
and Ernst Augstein, Herbert Riehl, and Volker Wagner. Mass and energy transports in an undisturbed Atlantic trade-wind flow. 101.
Ozone distribution in stratosphere numerical experiments. 510.
Ozone fluctuations, quasi-biennial and long term. 426.

P

Pacific Northwest mesosystem weather—summer case. 13.
PAEGLE, JAN:
and David W. McLawhorn. Correlation of nocturnal thunderstorms and boundary-layer convergence. 877.
and Glenn E. Rasch. Three-dimensional characteristics of diurnally varying boundary-layer flows. 746.
PAGNOTTI, VITO:
and David Rind. Relationship between midstratospheric synoptic features. 475.
and Lance F. Bosart and Bernhard Lettau. Climatological aspects of Eastern U.S. back-door cold frontal passages. 627.

Parameters of the gamma probability model: distribution and stability period applied to monthly rainfall over Southeast Asia during summer monsoon. 884.
PARTHASARATHY, B.:
and P. Jagannathan. Trends and periodicities of rainfall over India. 371.
Penetration of marine air in western Oregon. 356.
Periodicities and trends of Indian rainfall. 371.
Persian Gulf gales—role of deep convection and strong winds aloft. 455.
Photochemical models: effect on calculated equilibria and cooling rates in the stratosphere. 783.
Picture of the month:
autumn snow storms in the plains. 898.
dry air intrusion into a low-level moist tongue as viewed by ATS 3. 594.
frontal rope in the North Pacific. 774.
gravity waves following severe thunderstorms. 708.
late summer hazards to coastal southern California. 376.
meso-highs and satellite imagery. 180.
Minuteman exhaust trail. 56.
multiple tropical storms in Western North Pacific. 444.
NOAA 2 scanning radiometer visual and infrared imagery received real-time. 538.
orographic fibrous plumes over New England. 830.
snow covers the southland. 654.
VHRR imagery of an inversion. 262.
Planetary scale waves in stratospheric temperature field. 132.
Poisson models and hail and thunderstorm day probabilities in Nevada. 350.
PORE, N., ARTHUR:
Marine conditions and automated forecasts for the Atlantic coastal storm of Feb. 18–20, 1972. 363.
Precipitable water estimation with SIRS-B. 24.
Precipitation:
forecasting daily amounts from satellite data. 215.
gamma distribution probability model. 160.
patterns of mesoscale features in U.S. east coast cyclogenesis. 1.
records set in Southwest, Oct. 1972. 85.
records set in Great Plains and Rocky Mountains, Sept. 1973. 901.
Precipitation over India:
break-monsoon. 33.
monsoon depressions associated. 271.
Pressure oscillations over South Africa. 650.
Pressure perturbations in one-dimensional cumulus model. 201.
PRESTON-WHYTE, ROBERT A.:
and Peter D. Tyson. Note on pressure oscillations over South Africa. 650.
Primitive-equation model vertically integrated. 871.
PURDOM, JAMES F. W.:
Picture of the month—meso-highs and satellite imagery. 180.

Q

Quasi-biennial and long-term fluctuations in total ozone. 426.

R

Radiance data from Nimbus 3 SIRS. 132.
Radiation data from Nimbus 3 and stratospheric temperature and height gradients. 141.
Radiation data from satellites and estimation of cloud amount and height. 240.
Radiative cooling and cloud destabilization. 496.
Radiosonde and Nimbus 4 SIRS-derived data compatibility in stratosphere. 244.
Radiosonde wind data and estimation of kinematic atmospheric parameters. 252.
RAGETTE, GERD:
Mesoscale circulations associated with Alberta hailstorms. 150.
RAGHAVAN, K.:
Break-monsoon over India. 33.
RAO, P. KRISHNA:
and R. Koffler and A. G. DeCotiis. A procedure for estimating cloud amount and height from satellite infrared radiation data. 240.
RAO, V. R. KRISHNA:
Numerical experiments on the steady-state meridional structure and ozone distribution in the stratosphere. 510.
RASCH, GLENN E.:
and Jan Paegle. Three-dimensional characteristics of diurnally varying boundary-layer flows. 746.
RASMUSSON, EUGENE M.:
and Joshua Z. Holland. Measurements of the atmospheric mass, energy, and momentum budgets over a 500-km square of tropical ocean. 44.
Relationship between midstratospheric temperatures and tropospheric features. 475.
Remote forcing of tropical atmosphere. 58.
RENARD, R. J.:
and S. G. Colgan, M. J. Daley, and S. K. Rinard. Forecasting the motion of North Atlantic tropical cyclones by the objective MOHATT scheme. 206.
RIEHL, HERBERT:
and Ernst Augstein, Feodor Ostapoff, and Volker Wagner. Mass and energy transports in an undisturbed Atlantic trade-wind flow. 101.
Reply to "Comments on the 'Unnamed Atlantic tropical storms of 1970'." 380.
RINARD, S. K.:
and R. J. Renard, S. G. Colgan, and M. J. Daley. Forecasting the motion of North Atlantic tropical cyclones by the objective MOHATT scheme. 206.
RIND, DAVID:
and Vito Pagnotti. Relationship between midstratospheric temperatures and tropospheric synoptic features. 475.
ROSENTHAL, JAY:
Picture of the month—Late summer hazards to coastal southern California. 376.

S

SAKAMOTO, CLARENCE M.:
Application of the Poisson and negative binomial models to thunderstorm and hail days probabilities in Nevada. 350.
Sample size to achieve normality for estimators for the gamma distribution. 891.
Satellite data and daily rainfall forecasting. 215.
Satellite imagery:
birth of hurricane Agnes. 177.
cloud amount and height from infrared radiation data. 240.
meso-highs. 180.
typhoon Irma. 112.
VHRR imagery of an inversion. 262.
Satellite-observed bands of persistent cloudiness over Southern Hemisphere. 486.
Scanning radiometer visual and infrared imagery received real-time. 538.
SCHAEFER, JOSEPH T.:
On the solution of the generalized Ekman equation. 535.
Scheme of moist convective adjustment. 547.
SCHOENI, TERRY R.:
Picture of the month—Autumn snow storms in the plains. 898.
Sea breeze dynamics in atmospheric boundary layer. 187.
Sea-surface temperature anomalies and model-generated meteorological histories. 767.
Sea-surface temperature anomalies in a global general circulation model—transequatorial effects. 554.
Secular climatic fluctuations in southwestern Colorado. 264.
SELA, JOSEPH:
and William J. Bostelman. A vertically integrated primitive-equation model. 871.
Semimomentum approximations and numerical advection experiments. 231.

SHAUGHNESSY, JOHN E.:
and Thomas C. Wann. Picture of the month—Frontal rope in the North Pacific. 774.
SHEETS, ROBERT C.:
Analysis of hurricane Debbie modification results using the variational optimization approach. 663.
SHEN, WILLIAM C.:
and William L. Smith. Statistical estimation of precipitable water with SIRS-B water vapor radiation measurements. 24.
SHENTON, L. R.:
and K. O. Bowman. Note on the sample size to achieve normality for estimators for the gamma distribution. 891.
SIMPSON, R. H.:
and Paul J. Hebert. Atlantic hurricane season of 1972. 323.
SIRS-B water vapor radiation measurement. 24.
SMITH, ARTHUR H.:
Picture of the month—Snow covers the southland. 654.
SMITH, PHILLIP J.:
Midlatitude synoptic scale systems: their kinetic energy budgets and role in the general circulation. 757.
and Harrison Chien. On the estimation of kinematic parameters in the atmosphere from radiosonde wind data. 252.
SMITH, WILLIAM L.:
and William C. Shen. Statistical estimation of precipitable water with SIRS-B water vapor radiation measurements. 24.
Snow covers the southland. 654.
Snow depth (average) and monthly mean temperature anomaly. 624.
Snow storms in the plains—autumn 1972.
Solution of generalised Ekman equation. 535.
South African pressure oscillations. 650.
Southern California coastal summer hazards. 376.
Southern Hemisphere bands of persistent cloudiness. 486.
Southwestern U.S. record precipitation, Oct. 1972. 85.
SPAR, JEROME:
Some effects of surface anomalies in a global general circulation model. 91.
Supplementary notes on sea-surface temperature anomalies and model-generated meteorological histories. 767.
Transequatorial effects of sea-surface temperature anomalies in a global general circulation model. 554.
Spectral analysis of daily maximum and minimum temperatures on east slope of Colorado Front Range. 505.
SPELMAN, MICHAEL J.:
and J. Leith Holloway, Jr., and Syukuro Manabe. Latitude-longitude grid suitable for numerical time integration of a global atmospheric model. 69.
SPIEGLER, DAVID B.:
Reply to "Comments on 'The unnamed Atlantic tropical storms of 1970'." 380.
Statistical estimation of precipitable water with SIRS-B. 24.
Statistics of extended-term weather forecasting economics. 115.
Steady-state meridional structure in stratosphere—numerical experiments. 510.
Steady-state structure of ultralong waves produced by heating with pressure-dependent frictional effect. 566.
Stratospheric calculated equilibria and cooling rates affected by photochemical models. 783.
Stratospheric data: Nimbus 4 SIRS-derived and radiosonde compatibility. 244.
Stratospheric numerical modeling and stratospheric warmings. 306.
Stratospheric steady-state meridional structure and ozone distribution—numerical experiments. 510.
Stratospheric temperature and height gradients from Nimbus 3 radiation data. 141.
Stratospheric temperature field planetary scale waves. 132.
Stratospheric temperatures in relation to tropospheric features. 475.
Stratospheric warmings and dynamic coupling with troposphere. 306.
Stratus breakup and valley air currents. 195.
STRETEN, NEIL A.:
Some characteristics of satellite-observed bands of persistent cloudiness over the Southern Hemisphere. 486.
Suggestions for authors. 596.
Summer hazards to coastal southern California. 376.
Summer mesosystem weather in Pacific Northwest. 13.
Sunspots and changes in distribution of southwest monsoon rainfall over India. 691.
Synoptic scale systems: kinetic energy budgets and general circulation role. 757.

T

TAUBENSEE, ROBERT E.:
Weather and circulation of October 1972—record October precipitation in the Southwest. 85.
Weather and circulation of March 1973—record heavy precipitation over the Central and Southern Great Plains. 540.
Weather and circulation of June 1973—warm in the North, cool in the South. 712.
Weather and circulation of September 1973—record September precipitation in the Great Plains and Rocky Mountains. 901.
Weather and circulation of December 1972—record cold in the West. 281.
Teleconnections (meridional) in the atmosphere over the North Pacific, 1950 to 1972. 817.
Temperature anomalies at sea-surface and model-generated meteorological histories. 767.
Temperature anomalies (monthly mean) and average snow depth. 624.
Temperatures:
annual time series. 501.
spectral analysis of daily maxima and minima on east slope of Colorado Front Range. 505.
Temperatures in midstratosphere related to tropospheric features. 475.
Temporal variation of low-latitude zonal circulations. 803.
Theoretical and observational study of atmospheric flow over a heated island. Part I. Part II. 719, 731.
Thermal stratification and evaporation effects on boundary-layer geostrophic drag coefficient. 617.
Three-dimensional characteristics of diurnally varying boundary-layer flows. 746.
Thunderstorm day probabilities in Nevada. 350.
Thunderstorms followed by gravity waves. 708.
Thunderstorms (nocturnal) correlated with boundary-layer convergence. 877.
Time series analysis of annual temperatures. 501.
TRACTON, M. STEVEN:
The role of cumulus convection in the development of extra-tropical cyclones. 573.
Trade winds:
mass and energy transports in undisturbed Atlantic flow. 101.
Transequatorial effects of sea-surface temperature anomalies in a global general circulation model. 554.
Transport of air pollution long range. 404.
TRENBERTH, KEVIN E.:
Dynamic coupling of the stratosphere with the troposhpere and sudden stratospheric warmings. 306.
Global model of the general circulation of the atmosphere below 75 km with an annual heating cycle. 287.
Trends and periodicities of Indian rainfall. 371.
Tropical atmosphere:
mass, energy, momentum budgets. 44.
numerical model of remote forcing. 58.
mass, energy transports in Atlantic trade-wind flow. 101.
Tropical cyclone best tracks:
automated objective technique for construction. 824.
Tropical cyclones:
record 12- and 24-hr deepening rates. 112.
birth of hurricane Agnes. 177.
multiple tropical storms in Western North Pacific. 444.

Tropical cyclone forecasting in North Atlantic using objective MOHATT scheme. 206.
Tropical systems in Atlantic 1972. 334.
Tropospheric synoptic features related to midstratospheric temperatures. 475.
Typhoons:
record 12- and 24-hr deepening rates in tropical cyclone. 112.
TYSON, PETER D.:
and Robert A. Preston-Whyte. Note on pressure oscillations over South Africa. 650.

U

Ultralong waves produced by heating with a pressure-dependent frictional effect. 566.
UMSCHEID, L., JR.:
and K. Miyakoda. Effects of an equatorial "wall" on an atmospheric model. 603.
Urban complex diurnal heating function—atmospheric response. 467.
Urgent notice to authors and subscribers. 495, 593, 656, 718, 776, 823, 890.

V

Valley air currents deduced from stratus breakup. 195.
Variational optimization approach to analysis of hurricane Debbie modification results. 663.
Vertical motion fields—design of optimized kinematic computation scheme. 685.
Vertically integrated primitive-equation model. 871.
VHRR imagery of an inversion. 262.
VUKOVICH, FRED M.:
A study of the atmospheric response due to a diurnal heating function characteristic of an urban complex. 467.
The steady-state structure of the ultralong waves produced by heating with a pressure-dependent frictional effect. 566.

W

WAGNER, A. JAMES:
The influence of average snow depth on monthly mean temperature anomaly. 624.
Weather and circulation of January 1973—strong warming trend around midmonth. 381.
Weather and circulation of April 1973—a stormy month with widespread flooding. 597.
Weather and circulation of July 1973—cool and wet in the middle third of the country but increasing drought in the Northwest. 777.
WAGNER, VOLKER:
and Ernst Augstein, Herbert Riehl, and Feodor Ostapoff. Mass and energy transports in an undisturbed Atlantic trade-wind flow. 101.
WALKER, A. E.:
and W. B. White. Meridional atmospheric teleconnections over the North Pacific from 1950 to 1972. 817.
WANN, THOMAS C.:
and John E. Shaughnessy. Picture of the month—Frontal rope in the North Pacific. 774.
Water-vapor radiation measurement with SIRS-B. 24.
Weather note:
record 12- and 24-hr deepening rates in tropical cyclone. 112.
birth of hurricane Agnes. 177.
Weather, U.S.:
Atlantic coastal storm of Feb. 18–20, 1972. 363.
Atlantic hurricane season, 1972. 323.
Atlantic tropical systems, 1972. 334.
autumn snowstorms in the plains. 898.
drought in the Northwest. 833.
late summer hazards to coastal southern California. 376.
marine air penetration in western Oregon. 356.
mesosystem weather in Pacific Northwest. 13.
monthly fog frequencies. 763.
monthly résumés Oct. 1972—Sept. 1973. 85, 182, 281, 381, 461, 540, 597, 657, 712, 777, 833, 901.
orographic fibrous plumes over New England. 830.
record heavy precipitation over Central and Southern Great Plains, Mar. 1973. 540.
record Oct. 1972 precipitation in Southwest. 85.
record Sept. 1973 precipitation in the Great Plains and Rocky Mountains. 901.
snow covers the southland. 654.
WEBSTER, PETER J.:
Remote forcing of the time-independent tropical atmosphere. 58.
Temporal variation of low-latitude zonal circulations. 803.
WHITE, W. B.:
and A. E. Walker. Meridional atmospheric teleconnections over the North Pacific from 1950 to 1972. 817.
WHITNEY, LINWOOD F., JR.:
and Carl O. Erickson. Picture of the month—Gravity waves following severe thunderstorms. 708.
WINNINGHOFF, FRANCIS J.:
Note on a simple, restorative-iterative procedure for initialization of a global forecast model. 79.
Work conditions forecasting for road construction activities. 223.

Y

YEH, GOUR-TSYH:
The effect of thermal stratification and evaporation on geostrophic drag coefficient in the atmospheric boundary layer. 617.

Z

Zonal circulations: temporal variations at low latitudes. 803.

U.S. GOVERNMENT PRINTING OFFICE:1974 O—529-411